

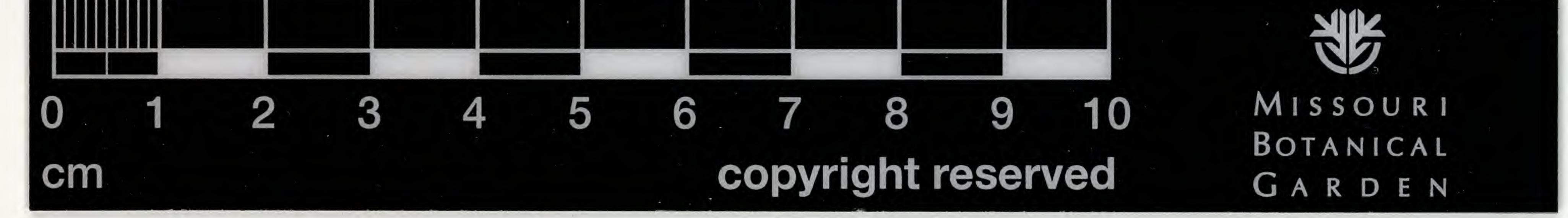
Combridge ort 3 1993 Sachs Botany they. W. Let 20 delistropism . The ports of the flower grown will in permant Jak nen er i Gyll; mork internader grow slower in fell light, at carre to the light if it comes from our tibe - led it Periodicity of growth in length course by the ellernation of day & night. sunshire the growth is ortsold; higher temperature promoter it, and greater moisture lenen Transpirition, They the lisues become monthery it and growth is promote Examples green e.g. - Mts, Curartite Surglissin, show what 5 f p. C. growth by dry and 48 p. Cal right - front i afterno (warmer) greater the - as many morning hours = 100 to 30 or 80 x Horden x Horden - Scot 19 Effect of temporature or growth. Tribirous germinates at 5°C Curatiti e 13. Ben mais & g c germinets less at 28-33° and not affect the temperature has attand 42.39 or 460° C. Though a higher temperature bes not this them yet, but they will germinets, if the temperature is browned! pits and Gordered pits of the word wells of Pines 0 0000 0 0 in radial section Through mature

(2) Change planting

(2) Change sporting stricture of the red wall most dealy san in hairs of Opuntis it lange prilled of the root tuling of Deblie - bestrells of Aprogramme (mode)



Thisken, of callwells sometimes soulls up i vater a bunts the this outer wall, a borones a their wantage with more water ( liam, going him of amalia sed, persong of below) or burstey through the stem forms gon ( Astray las Frage catter)



Just Ishorsberickt 1879 I.I. p. 89 Herry Mutiffiching de Liger 1.41 4000 of Elemen hum Fritis Islan continistion. (#289 Gropes mature) Hartig Unterschertungsmehmele der er ihigere - Hoelen (speriale Xylotomic) Minchen 1879 Hartig: A. Consperous woods a. Restract, absort in the wood 1. No heartwood present Taxus beaute, Zeen par Virginian, J. Communing

6. Nerra Last disting 1. No hastord firen ex rela 2. heartwood developed X duhumul layer board and soled and very district from springlager
Potent sylventris Lantio, montain Lange Cumpiese

XX attemnel layer narrow, not grally listent for springlagers P. Combre, Shober. Decolon word a Vessels on the inner Chail of the annual rings very large (ring-porous) Fortines excelsion, Carya, Mones alle, Robinia Bent, Gledithis marks Cityson Rab. Astanthe gladuloze XX Versels outsite of the some rinche united to commented where sometimes franching undeleted lines; Ulmy effect, montain solving XXX Vissels ordsist of the fore of the in Tail Theper groups is ndilamanjend, and someling mostelly branched t medullary vays partially very large, mostly very smile denot invisible queros ++ mes. my seamly visible Costanes 111 all med. mys vog Broad Mi, Berbeni, Rosa 8. Prosels on the inner limit of the nancel now not larger but much more numerous thereby producing a lighter colored Cooser textuns vernel band & meddling rays district, vessels in the annual layer equally district Human dronestor, anheld båder, avrice - Samberer nign XX Metallang my scarrely visible; headwood dreply colound Ahanne calletin , frangede, Oher byther, Chair, Tyrings . C. Vessels on the inner limit of the annual rings not layer or more numerous, woods without spring vernal pore-rings. \*. Ibres seam bet my large Jugland regul 2. story small and intent. x numeron board med Many rays XX form very brond med rays with namery very small starrely visible rays; no shellar spots Fague Carpiness Orylers XXX The felse broad med rays mostly the think. He true simillong only it the radice section is the money brown inchallen yout, Alma glubskou, incana XXXX all med mys equal, Notitet, but soull Aver Phudoplatus platanoides campethe Tilis Hexaquipe XXXXX Mid. mys not orible + hard woods line coma. hales Contages Oxyandl Solver aurapani, torminalis, Ania Betuli alle Conynes Europ. Buxen sempenites It Soft woods Alexanders, Popular tremele alle nigne balsamisjen. Saling Capora cinera, alle fregiling perhander. Molisch sugs the Wood of Chancere shows humification and dow carbonisation has also numerous constate of Spalate of line it the med lang mys de the day wood the versels contain i Storgeyors of MISSOURI BOTANICAL

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N8. Thelesperma, Less. (Omin, nippid, strésua, sud, from the présidence the Rusky Minutains, and one in the Bampas south of Assar 2 le), smooth and glahms; with opposite more fruely dissected leaves, and community showy slender peringulate hears; the mays golden gellen Joisk-flowers gellen er brunisch. I d'in no. Vi, 5-11; Gray in Kew Jones. Bot. 1, 252, & Ol. Might. 1'. 10g M. Ovsmidium, Jon. Lessay in hull, Frans. Mu. ohil, Avel, f.c. 361, of Fe, 11. 350. A St. Throat of Disk-coulas campan ulate, Shorter Haaf the line ar or lancertate likes; the style-appendages with cusmidate or subulate tip: babbres, & GEORGE ENGELMANN PAPERS MISSOURI

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Schrimpeniana 1858 all devident trees file Conferons trees have thicken layers of have thicken layer, of wood on the upper side wood on the lower side of their branches, or of their branches, or in other words i are expending ei other word; ære ex\_ Celens. antit up and. ei a verghigh degree Calleina. The original auguler steen of which es eitte restange la on abligacy should to [3] Exceptions (x ~ Zo Ahen, Catalper, Chedra Stapphyla Crica MISSOURI BOTANICAL

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Mus Cotions i me of the few if not the only true or the the horizontal branches of lotheil have their leave, regularly amanged anne the append 2 all the others, the leaf turn, the epperde apivars, at the low downias To that they amen surve on less a Listichon, amangement.





Burkarts Sannhung der wichtigster Europaeische Mod hoefer in chandwistsshen Schnitter (von 7.M Podang in Wien. Brian 1880, Verlag von W. Burkert Setro d'entire, Montaine of Word T'arenchymu spaning; thood fibres (Libriform) sbandet and forming the men of the wood. Some wood fibres grow in length & with and also in Thinkness of well, often the Trues verse walls which I vide a perpending series of them, diappear, forming by taker, the vessels or viscolar organs, The verrels are seen in the aron section as porces Which are either southered in the wood or comanged in Groups and in restricio di victoria, Donal ad Autual part of the Unnuel ring Tracheides & versels usually orner to getter (especially the former in autumnel wood), I Compens wood the servels as well as the dignerous febres av absect; in their place Trackeides with anotated date an formed. Resissand lat ni Comferse Meddlang Rays, radictives from the meddle. They some Fines ( Buren, Junguem) an ford by single rows of cells and are then invisible to the naked eye annual migg sometime, in vis sole or not present This last sing many Tropial woods. In then lust Here are often false vings visible, then lest are not continues around the whole wood and off-give it a netted appearance Sapwood, Malure wood (Reif-holy) and heartwood (Kernholy)

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Trica for excelse colours forond behavior reddish & pellowish white, texture of the coarse, slight resistory of resistants distinguishe it for Abies pectite. Meddley mays onthe intite (innen) with simple pores, only on the upper as lover may in of the weed rough) with small corolated tapfel. No heart wood, but Miling wood; made sometimen as this as & Mm.

Density-Juice project - Shouhing - Swelling (Juellen) - Elastirity and tensority - hardness - Splitting - Sumbility (in air - with)

Mier pestisati, colom postil what to gellowit white \_or white \_ no stat reshows odor. la nindet, in wood, - Mestan cond but no headwood - Sap wide; Madalla or pith oil 1.5 Man Thick angular brown metalling verys visible only under the gen, composed of comform cells extent anotated dot. Annual riags of differ orith, distinct. etc. Lemp European Separad of differt with, yellowsh Shit, headwood redbrown shiving. Madelley rys often 3-4 Jeniel (3-4 Jenies of odle probably); outer odles like there of the Price , resin-cand more numeron, and distint. Middle very small, and rings find undalate. Tiam sylventie Sapwood vog wite (25-80 mings) yellowith to ved hish white; heartwood after exposure brownish and, frymet; autual al vernel part of migs very ditinct. The executive character of their wood consists in the 2-fold cells of the Med. A. vays; i amenday with large (arcolated, dots, extensor ones with gickgachen thickening. 2 the autual wood principally necessor resin Late. The very fine a animor med. mys visible only out the Glan

Pians authier similar to P. Sqlouting sap very Hist, broad rings with red author word, Olesin often very about IT . Then. P. Cembra sap. yellowish white, heart rud brown, friguest, Annual vings very uniform; autual fact narrow, good-ly charges to. Her vernel wood, therefore the knewl very and very Istally muched. Medulley my veg slight, of one on severel lagers of cells, inver olls with large perforted dot, the outer with small woodets dot. numeron somell residents, visible und the glan, near the autumne asoo. O. Storting Sap broad yellowish shet, hard wood neddish geller to veddich brown; Alexanice sincilar to Combre Capressen fastigiale White or pole gellowith brown , s. m. to off. per arometrie, nigs distinct, medulle ray, seen est the glan, quite narrower, sometimes opirally striped. The insur I outer medelling. cells with numerous pores. Junipenes Communis Sep gellowich, head gellowich Grover, Jemen Estevin of annual sings wavy, notorer ; pleasant fragmence Madellay voys visible only by that of the flow numerous, equi distant. No resindents. Middley cells unform, on the app I lower abje of the rays with ourse numerous dots . The brukeity of Sumpenn, Caprency and Lakery were smiller the three of Other, alkarix Latur baroute dap very narrow Jullowsh white; had wood ordsich - Grown with fine this destandbrown Thiper from the narrow riggs



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not anomation. Much. mys visible only by the cit of a glass. Frankeids narrow, much thickened, own in the yearing wood, charactering ly a Brown friend band, Such overlys the anolated Ist. Resindents and wood-pavenchyma are absent formis federalite & semiliflen lange pover i the vernel wood formis a very strict rings, broad shing medellay rays & light brown colour. Hums smillen pover grouped it teit shaped groups becoming smaller towards the westermand wood , Benderthe broader med. mys namer our, off toits, are visible. Head crand, Castances vessea similate Oak wood, Istingwild by the obsence of the broad med rays. Med. my namos (1-cell-series) only visible citt the glan Lagues sylvatria Fransition for Sopte mature wood & heart and so grade that the lower tree along oblitanted. Amuel rings Islinguished by the durker autumned wood. This ways of life with the naked eye isolated, irregularly scattered, in the autumne wood 3 mullan. Their trosoure valls obtilented or putially precessed that my 1-15 series of all, thick, Man of and consity of much thickens libriform with arcolated date, little paventy Selig Capoen & Popular tremala White Jap with Malun wood, light brown heart i Ammel sings suffee di trust but pores and then mys work wisible withet an glass the the very this is very namerous, the former smiller in the centrum & part of the ving



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· Ailantus glandlosa bond pith, yellowish sap, orange-Coloured heart; hudllary may will makent, stright. annual rings plain; under the Glan light ool 2 points in the annual rings plain; under the Glan light ool 2 points in the annual word, Bester the Grond Med. mys many Milite ones Alen wary. The Vissels have small dots ( Tupfel); the smaller vinds have spiral inevenent. Libripon much thickened Aver campestro, Bendoplalanu, platanoidy All day word, no hart distriguishable (all Persone maples an "Med. mys Astirity shining, Drads my smil, still smiller in The autummel wood - southers, with Ist and many with spiral thicken, Kaxinus excelsión sap bond, white, miture wood, a boad ring of porces in the Demil wood. Medall ones of seen leg glan, also light rolound off Francoure spots Mercully 2-3 viril, are grouped to gether and Jav. fine grined, rings, med all rays of mattered pory only vis ible with the glass. In the vernal word versels numerous, grouped in visit lines, with sour arcolate dots, sometiments with file Sprint likes.



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Tilis purvifolis spensod Boad white, dedorth. 1-3 morely -5 senin foells) Sohnet, light points, especially in spring word seen with a glass. Vinds i groups or redial likes " smill round dots (Supple) and spiril bead, Varahymi Avanover und Ester series of single well

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